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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/600,888	08/15/2000	Kingo Suzuki	107242.00005	4637
4372	7590	03/27/2008		
ARENT FOX LLP 1050 CONNECTICUT AVENUE, N.W. SUITE 400 WASHINGTON, DC 20036			EXAMINER TRINH, HOA B	
			ART UNIT 2814	PAPER NUMBER
			NOTIFICATION DATE 03/27/2008	DELIVERY MODE ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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<b>Office Action Summary</b>	<b>Application No.</b> 09/600,888	<b>Applicant(s)</b> SUZUKI ET AL.	
	<b>Examiner</b> HOA B. TRINH	<b>Art Unit</b> 2814	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 15 February 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 7, 11 and 13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 7, 11 and 13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 August 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 02/15/2008 has been entered.

### **Claims Status**

Claims 7, 11, 13 are pending in the present application.

### ***Claim Objections***

2. Claims 7 and 11 are objected to because of the following informalities: In claim 7, line 5, the terms "arc-like sectional" are vague and ambiguous, because they do not clearly define the structural feature of the claimed subject matter. Appropriate correction is required.

3. Claim 11 is objected to because of the following informalities: In claim 11, line 4, applicants use an improper Markus grouping. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

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5. Claim 7 is rejected under 35 U.S.C. 102(e) as being anticipated by Wegleiter et al. (6,531,405; hereinafter as Wegleiter).

Wegleiter (6,531,405) discloses a light emitting diode 18 (fig. 1) comprising a pellet 2, 3, 4 (fig. 1), a major front surface 7 (layer 4) (fig. 1) which is made of a GaAsP (col. 5, lines 18-28) mixed crystal, and where an electrode 6 (fig. 1) is formed; and characterized in that the major front surface 7 is a rough surface (fig. 1). That all side surfaces (fig. 1) of the pellet are roughened, wherein the rough surfaces are formed with fine projections with convex surfaces (fig. 1), wherein the fine projections are being arc-like sectional shapes to be formed densely by wet-etching (col. 2, lines 25-30) of an aqueous solution containing hydrofluoric acid, and that the convex surfaces of the rough surfaces are configured to allow a light getting to an interface (col. 4, lines 1-7) between a light emitting surface and the air at an angle that is inherently larger than a critical angle of total reflection  $\theta$  to be transited into the air through the convex surfaces. The convex surfaces have a diameter of 1  $\mu\text{m}$  (col. 4, lines 2-5; note that the height is equivalent to the diameter) which is within the claimed range of the diameter.

Alternatively, the wet-etching process does not structurally distinguish the prior art structure, because the claim is directed to a device and any step in the claim is treated as an intermediate step that does not affect the final structure of the device. See MPEP section 2113.

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

1. Claims 7, 11 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wegleiter in view of Itabashi et al. (5,308,996; hereinafter as Itabashi)

Wegleiter (6,531,405) discloses a light emitting diode 18 (fig. 1) comprising a pellet 2, 3, 4 (fig. 1), a major front surface 7 (layer 4) (fig. 1) which is made of a GaAsP (col. 5, lines 18-28) mixed crystal, and where an electrode 6 (fig. 1) is formed; and characterized in that the major front surface 7 is a rough surface (fig. 1). That all side surfaces (fig. 1) of the pellet are roughened, wherein the rough surfaces are formed with fine projections with convex surfaces (fig. 1), wherein the fine projections are being arc-like sectional shapes to be formed densely by wet-etching (col. 2, lines 25-30) of an aqueous solution containing hydrofluoric acid, and that

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the convex surfaces of the rough surfaces are configured to allow a light getting to an interface (col. 4, lines 1-7) between a light emitting surface and the air at an angle that is inherently larger than a critical angle of total reflection  $\theta$  to be transited into the air through the convex surfaces. The convex surfaces have a diameter of 1  $\mu\text{m}$  (col. 4, lines 2-5; note that the height is equivalent to the diameter) which is within the claimed range of the diameter.

However, Wegleiter does not explicitly teach the etching agent contains iodine ( $\text{I}_2$ ), hydrofluoric acid, nitric acid, and acetic acid as claimed.

Itabashi discloses an analogous device and method having the step of etching a layer surface of the device using aqueous solution containing iodine ( $\text{I}_2$ ), nitric acid, hydrofluoric acid and acetic acid (col. 9, lines 36-41) for reducing the time of making the device (col. 3, lines 25-26).

Therefore, as to claim 11, it would have been obvious to one skilled in the art at the time the invention was made to make the aqueous etching solution of Wegleiter with the aqueous etching solution containing  $\text{I}_2$ , nitric acid, acetic acid, and hydrofluoric acid, as taught by Itabashi, for the advantage as mentioned in the above.

With respect to claim 13, the combined teaching of Wegleiter and Itabashi meets the present invention, except specifying the concentration ranges of the nitric acid, hydrofluoric acid, acetic acid, and  $\text{I}_2$  as claimed. Nonetheless, it would have been obvious to one skilled in the art at the time the invention was made to provide a specific ranges of concentration for the chemical compounds, since it is prima facie obvious to an artisan for routine experimentation and optimization to set specific ranges for the concentration of the chemical compounds because applicant has not yet established any criticality for the specific range or unexpected result.

Note: The courts have concluded that a change in dimension, degree, size, shape, etc. without special functional significance is not patentable. Research Corp. v. Nasco Industries, Inc., 501 F2d 358; 182 USPQ 449 (CA 7), cert. denied 184 USPQ 193; *USLW* 3359 (1974), *In re Rose*, 105 USPQ 137. “More particularly, where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation.” In re Aller 105 USPQ233, 255 (CCPA 19553).

### ***Response to Arguments***

2. Applicant's arguments with respect to the pending claims have been considered but they are moot in view of the new rejection.

### **Conclusion**

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Vikki Trinh whose telephone number is (571) 272-1719. The Examiner can normally be reached from Monday-Friday, 9:00 AM - 5:30 PM Eastern Time. If attempts to reach the examiner by telephone are unsuccessful, the Examiner's supervisor, Mr. Wael Fahmy, can be reached at (571) 272-1705. The office fax number is 703-872-9306.

Any request for information regarding to the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Also, status information for published applications may be obtained from either Private PAIR or Public Pair. In addition, status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspro.gov>. If you have questions

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pertaining to the Private PAIR system, please contact the Electronic Business Center (EBC) at 866-217-9197 (toll free).

Lastly, paper copies of cited U.S. patents and U.S. patent application publications will cease to be mailed to applicants with Office actions as of June 2004. Paper copies of foreign patents and non-patent literature will continue to be included with office actions. These cited U.S. patents and patent application publications are available for download via the Office's PAIR. As an alternate source, all U.S. patents and patent application publications are available on the USPTO web site ([www.uspto.gov](http://www.uspto.gov)), from the Office of Public Records and from commercial sources. Applicants are referred to the Electronic Business Center (EBC) at <http://www.uspto.gov/ebc/index.html> or 1-866-217-9197 for information on this policy. Requests to restart a period for response due to a missing U.S. patent or patent application publications will not be granted.

/(Vikki) Hoa B Trinh/  
Examiner, Art Unit 2814